Technical Data

Operating voltage	230 V, 50 Hz / 60Hz
Relay contacts	2 voltage-free make-contacts
Max. switching current	16 A AC 1 each
Max. switching voltage	250 V ~ each
Display	3-digit, 13 mm LED
Display range	-9,9 to 99,9
Sensor	NTC thermistor 2.2 k Ohm/25°C
Measurement range	-9,9° to 50°C
Target temperature T1	Factory-set to 8°C
Target temperature T2	Factory-set to 4°C
Control type	2-step regulator
Hysteresis	0.3 K to 2 K adjustable
Stirrer:	
- resting time (interval)	15 min. / 30 min adjustable
- stirring time	2 min.
Housing	Wall mounted housing
BxHxD	80 x 160 x 86 mm
Electrical connection	screw connection
Permissible ambient temperature	-10°C to +50°C
Storage temperature	-20°C to +70°C

Special versions on request.

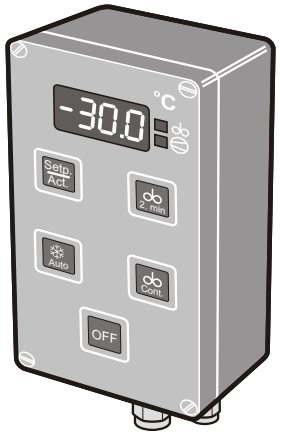
ALWAYS CHANGE THE SENSOR WHEN CHANGING THE THERMOSTAT !

ADJUST SETPOINTS AFTER 5 MINUTES OPERATION !

© by WELBA - 10/09/03

Installation and Operating Instructions

Electronic Milk Refrigeration Thermostat ETM-W200



The ETM-W200 is an electronic milk refrigeration thermostat with automatic afterstirring control.

The thermostat has two separately adjustable setpoints which can be selected by means of an internal slide switch.

The current milk temperature is displayed continuously.

If the milk temperature exceeds the selected setpoint, the compressor and agitator are switched on automatically. When the setpoint is reached, the compressor switches off first, followed two minutes later by the agitator.

Between refrigeration periods, the agitator motor switches on again for 2 minutes, optionally every 15 or 30 minutes, in order to ensure a uniform temperature throughout the milk.

Independently of this, the agitator can be switched on for 2 minutes by pushbutton or can be switched to continuous operation.

WELBA GmbH
Electronic Control Engineering
Gewerbepark Siebenmorgen 6
D-53547 Breitscheid

Phone: +49 (0)2638 / 9320-0
Fax: +49 (0)2638 / 9320-20
E-mail: info@welba.de
Net: www.welba.de

Safety

The milk refrigeration thermostat and the installations connected to it contain live components.

When installing the milk refrigeration thermostat, it is ESSENTIAL to comply with the relevant regulations for electrical installation !

Only authorized specialist personnel are to be allowed access to the area when connected !

Installation

Casing installation

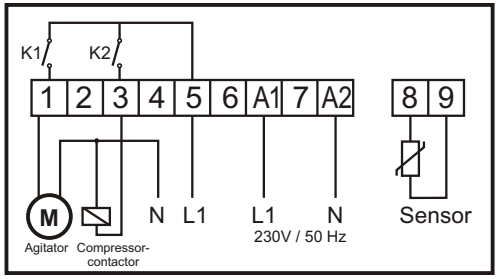
By virtue of its construction, the milk refrigeration thermostat can be installed in practically any location.

- Unscrew the housing cover.
- Attach the housing base to the wall with four screws.

Sensor installation

For operation of the milk thermostat, it is ESSENTIAL to use the temperature sensor provided.The sensor lead may be shortened or extended.

Electrical connection

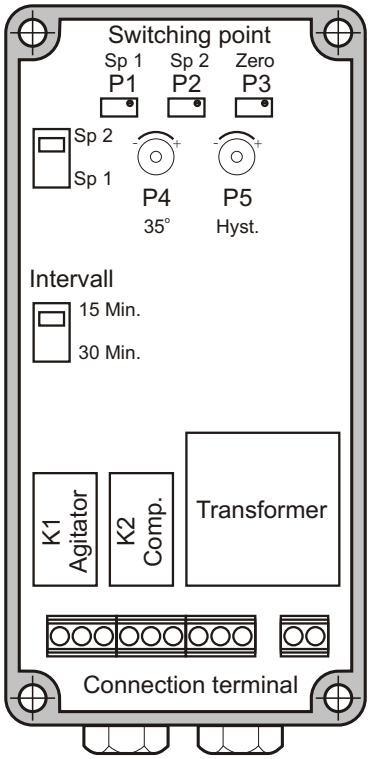


IMPORTANT Do not apply the supply voltage until agitator, compressor and sensor have been connected !

- Carry out electrical connection in accordance with the above circuit diagram.
- Connect supply voltage (230 V) to terminals ‘A1’ and ‘A2’.

Setting by Installation

Following settings are only allowed by authorized personnel:



Temperature setpoint 1 (4°)
(only when other temperature required)

- Set slide switch to ‘Setpoint 1’
- Depress the ‘Setpoint/Actual’ key: the current temperature setpoint will be displayed.
- Adjust potentiometer ‘P1’ until the required temperature setpoint appears on the display.

Temperature setpoint 1 (4°)
(only when other temperature required)

- Set slide switch to ‘Setpoint 2’
- Depress the ‘Setpoint/Actual’ key: the current temperature setpoint will be displayed.
- Adjust potentiometer ‘P2’ until the required temperature setpoint appears on the display.

Hysteresis
(switching temperature difference)
(Factory preset to 0.7 K)

- Potentiometer ‘P5’ can be used to reduce or increase the hysteresis if required.

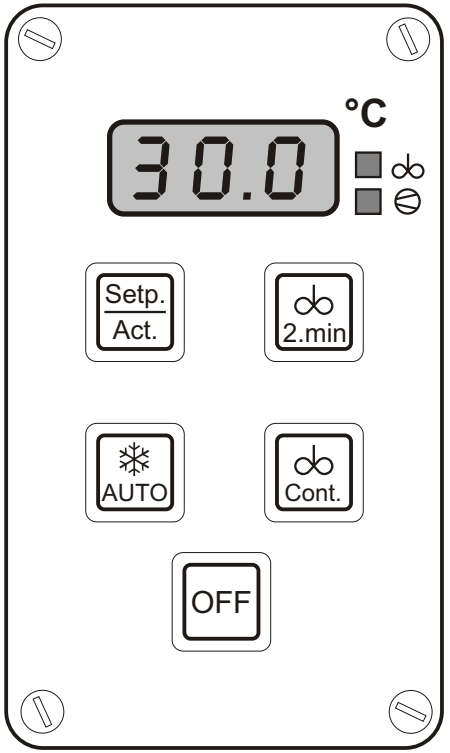
Interval time

- Slide switch set to 15 minutes:Between refrigeration periods, the agitator motor switches on for 2 minutes every 15 minutes.
- Slide switch set to 30 minutes:Between refrigeration periods, the agitator motor switches on for 2 minutes every 30 minutes.

IMPORTANT:

The milk refrigeration thermostat has been adjusted in our factory. Please do NOT alter the settings of potentiometers ‘P3’ and ‘P4’ !

Handling



Status - LED

	Agitator ON Agitator is in operation
	Compressor ON Compressor is in operation

Key functions

Setp. / Act.	**Display setpoint** For display of the current setpoint
2.min	A two-minute agitation period can be initiated with this pushbutton switch
AUTO	**AUTO** The thermostat operates in AUTO mode[1].
Cont.	**CONT** The agitator motor operates in continuous mode. The compressor remains OFF.
OFF	**OFF** Switch thermostat OFF

[1] **AUTO mode:**

- The milk is refrigerated down to the preset temperature (4° / 8°). The agitator motor is running continuously.
- After reaching the preset temperature, the compressor switches off.
- Two minutes later the agitator motor switches off.
- In the intervals between refrigeration, the agitator motor switches on again for 2 minutes, optionally every 15 or 30 minutes, in order to ensure a uniform temperature throughout the milk.
- If the milk temperature exceeds the setpoint, the compressor and agitator are switched on automatically.